

WHAT IS CLAIMED IS:

1. A hydraulic master cylinder, comprising:

a cylinder main body internally formed with a piston mount space extending in a longitudinal direction and formed at one end thereof along the longitudinal direction with a supplying/discharging opening for supplying and discharging a hydraulic liquid into and from the piston mount space;

a piston mounted in the piston mount space in such a manner as to be movable by a restricted stroke along the longitudinal direction; and

a seal ring mounted on an outer circumferential portion of the piston in such a manner as to project more radially outward than the outer circumferential surface of the piston and held in sealing contact with the inner circumferential surface of the cylinder main body defining the piston mount space, thereby cutting off the flow of the hydraulic fluid at a sealing-contact position,

wherein:

the cylinder main body includes an auxiliary supplying/discharging passage communicating sideways with the piston mount space; and

the inner circumferential surface of the cylinder main body and the outer circumferential surface of the piston are so shaped as to define a communication path for communicating a pressure chamber, which is a part of the piston mount space

closer to the supplying/discharging opening than the seal ring, and the auxiliary supplying/discharging passage with the piston moved to a rearmost position most distanced from the supplying/discharging opening at the outer side of the seal ring.

2. A hydraulic master cylinder according to claim 1, wherein:

the inner circumferential surface of the cylinder main body defining the piston mount space includes a pressure-chamber side inner circumferential surface having such an inner diameter that the outer circumferential surface of the seal ring is in sealing contact therewith over the entire circumference and a communicating inner circumferential surface adjacent to a side of the pressure-chamber side inner circumferential surface opposite from the supplying/discharging opening and shaped such that at least a part thereof along circumferential direction is radially separated from the outer circumferential surface of the seal ring;

an inner space of the communicating inner circumferential surface communicates with the communication path; and

the position of the communicating inner circumferential surface is set such that the outer circumferential surface of the sealing ring faces the communicating inner circumferential surface with the piston located at the rearmost position.

3. A hydraulic master cylinder according to claim 2, wherein a seal-ring mounting groove is formed in the outer circumferential surface of the piston over the entire circumference, and the seal ring is mounted therein.

4. A hydraulic master cylinder according to claim 2, wherein the communicating inner circumferential surface has such recesses and projections as to change the inner diameter thereof depending on its circumferential position, and a maximum inner diameter thereof is set such that minimum inner-diameter parts of the communicating inner circumferential surface are held in sealing contact with the outer circumferential surface of the seal ring.

5. A hydraulic master cylinder according to claim 4, wherein a seal-ring mounting groove is formed in the outer circumferential surface of the piston over the entire circumference, and the seal ring is mounted therein.

6. A hydraulic master cylinder according to claim 4, wherein a plurality of communication grooves are formed in the communicating inner circumferential surface while being circumferentially spaced apart, and parts of the communicating inner circumferential surface where no communication groove is formed are the minimum inner-diameter parts.

7. A hydraulic master cylinder according to claim 6, wherein a seal-ring mounting groove is formed in the outer circumferential surface of the piston over the entire circumference, and the seal ring is mounted therein.

8. A hydraulic master cylinder according to claim 7, wherein an inner seal ring made of an elastic material and an outer seal ring made of an elastic material having a higher hardness than that of the inner seal ring and mounted at a more radially outward position than the inner seal ring are mounted in the seal-ring mounting groove, and the outer seal ring projects radially outward from the outer circumferential surface of the piston to be held in sealing contact with the inner circumferential surface of the cylinder main body.

9. A hydraulic master cylinder according to claim 7, wherein the piston includes a piston side communication path formed at a position closer to the supplying/discharging opening than the seal-ring mounting groove and open toward the supplying/discharging opening and toward a radially outer side of the piston, and the pressure chamber communicates with the auxiliary supplying/discharging passage via the piston side communication path with the piston located at the rearmost position.

10. A hydraulic master cylinder according to claim 9, wherein an inner seal ring made of an elastic material and an outer seal ring made of an elastic material having a higher hardness than that of the inner seal ring and mounted at a more radially outward position than the inner seal ring are mounted in the seal-ring mounting groove, and the outer seal ring projects radially outward from the outer circumferential surface of the piston to be held in sealing contact with the inner circumferential surface of the cylinder main body.

11. A hydraulic master cylinder according to claim 9, wherein the piston side communication path is formed at a plurality of positions spaced apart along the circumferential direction of the piston and is open toward the supplying/discharging opening, toward the seal-ring mounting groove and toward the radially outer side of the piston.

12. A hydraulic master cylinder according to claim 11, wherein an inner seal ring made of an elastic material and an outer seal ring made of an elastic material having a higher hardness than that of the inner seal ring and mounted at a more radially outward position than the inner seal ring are mounted in the seal-ring mounting groove, and the outer seal ring projects radially outward from the outer circumferential surface of the piston to be held in sealing contact with the inner circumferential surface of the cylinder main body.

13. A hydraulic master cylinder according to claim 1, wherein a seal-ring mounting groove is formed in the outer circumferential surface of the piston over the entire circumference, and the seal ring is mounted therein.